Congenital malformations and determined rate in Diwaniyah city.

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Abstract:

This study analysis of congenital malformation among birth in Diwaniyah city for period extended from June-August in 2008.Itwas 3400 liveborn babies ,42(1.24%) infants were diagnosed with congenital malformations and the percentage of congenital malformations was 1.87%,1.17% and0.87% for three months respectively. The results showed that congenital malformations increased with infants had type O^+ group and parents with first degree in consanguinity.

Introduction

Congenital malformations are anatomical defects, chromosomal abnormalities or other genetic diseases that are present at birth.(1). Birth defects according to the World Health Organization's (WHO) term: congenital anomalies – are structural, functional and/or biochemical-molecular defects present at birth whether detected at that time or not (Figure 1) (2)They are found in approximately 3% of newborns. These represent a structural defect of prenatal onset which could be either in the form of a single primary defect in development or in the form of multiple malformations.(3)

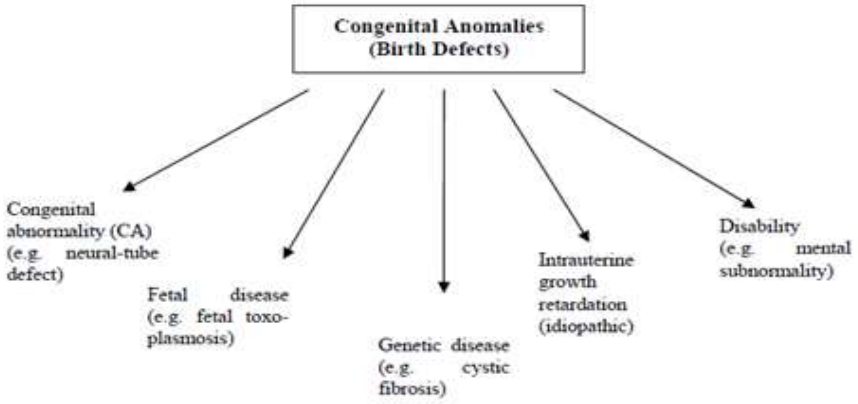

Figure 1.Classification of Congenital Anomalies(2)

The causes that are known can be classified into certain groups. Congenital malformations that are caused by a genetic condition 15-25%(chromosome and single gene cause)(4,5). Congenitional malformations can also be caused by an interaction between genetic and non-genetic factors, as seen with Down syndrome, which becomes more common as maternal age increases(2). It has been suggested that such interactions account for 20% of malformations (6). As well as genetic factors, there are specific environmental factors which have been found to cause congenital malformations. These may include maternal infections such as rubella, maternal illness such as diabetes, environmental substances such as mercury, teratogenic agents taken by the mother (drugs or chemicals which can cause congenital malformations), and nutritional deficiencies such as a lack of folate(7). Maternal illness and

teratogenic drugs are thought to account for approximately 5% of all congenital malformations(8).Some congenital malformations result from environmental factors means that it is possible to decrease occurrence through primary prevention. For example, thalidomide, a teratogenic drug previously used to treat morning sickness, is no longer given to women, and doctors are more careful when prescribing drugs to pregnant women. Immunisation against rubella in adolescence is a preventive measure to ensure women do not contract rubella while pregnant. Increasing the consumption of folate prior to conception can decrease the likelihood of neural tube defects occurring in the baby.(9,10)The purpose of the present study was to provide the profile of congenital malformation in this area of Iraq and to determine the current prevalence of genetic and congenital anomalies among our populations.

Material and Methods:-

This study was involving all babies born at obstetric hospital in Diwaniyah city during three months(June ,July and August ,2008.all of live newborns delivered in this hospital during the study period were examined and screened for congenital malformations.The diagnosis of a congenital abnormalities was based on clinical examinations or prenatal ultrasonographic by physician.The charts of newborns with congenital were extracted .Variables recorded included demographic data. The date of birth, sex, blood group, ethnicity .For each case, a detailed antenatal history including history of exposure to teratogens and family history ,including the level of consanguinity, were obtained by reviewing the interviewing the parents.

Result and Discussion:-

Table (1) showed the number of the normal parturition for three months. June ,July and Augst,2008 was 964,1164,1272 respectively, and the number of the newborn infants with congenital malformations was 18(1.87%),13 (1.17%),11(0.87%) respectively. The overall frequency of congenital malformation in the newborns was 42/3400(1.24%). This results was similar to study in Najif (11),but a higher frequency of congenital malformations was reported from study in Basra located in the south of our country(12). Other countries in the middle east and other parts of the world representing different frequency of congenital malformations.(13). in Egypt was reported higher frequency in congenital malformations 3.17% (14); in Spain (20.23/100)(15); in Libyan Arab Jamahiriya 23.80/1000.(16),in India (27.2/1000)(17);in Atlanta ,USA (31/1000) among live births only(18);in bosna and Herzegovina 2.16%(19); in Afganistan was 2.4% (20).In present study if we used screening tests and genetic studies , the frequency of congenital malformation would be more than this rate.In table 2 shows systemic distribution and the frequency of congenital recorded the types of the congenital malformations which diagnosis in the hospital. The congenital anomalies of upper limp was the most affected involving 7(16.66%), Neural tube defect (N.T.D) was the second in frequency which involving 6(14.28%). Some workers have reported Central nervous system CNS defects as highest(14,21,22)and showed the CNS was the common type of anomalies .But in Bosna(19) was the lowest in CNS .This result agreement with turkey and Saudi (14,21).The central nervous system anomalies comprise 40% of all anomalies(23),the cause this high percentage for nutritional a etiology (24). One possible explanation for the apparent higher percentage of these types of defects may be because they are obvious at birth and are recorded more carefully than other defects. Chromosomal anomalies has similar rate of N.T.D in this study 6 (14.28%).The congenital heart disease come third in frequency 3 (7.14%). This result was similar to rate for some

countries, it was the most common group of birth defects (25).for this defect many causes such as genetic factor, asphyxia at birth, birth at high altitude and congenital rubella(26). The risk for cardiovascular defects is summarized for periconceptional multivitamin or folic acid intake, which may reduce the risk of cardiac disease in the fetus, and for additional types of potential exposures that may increase the risk, including maternal illnesses, maternal therapeutic and non therapeutic drug exposures, environmental exposures(such as radiation , pesticide, smoking, stress ,bad nutritional)and paternal exposures(27). And interactions between genetic and lifestyle factors in early pregnancy are assumed to be involved in the pathogenesis of complex malformations (28).The other congenital anomalies was Dyspnia and cyanosis was involving 2(4.76%) then the Diaphramtic Hernia , Dermoid cyst , Saccrococcygel mass(teratomas), Imperforate anus , Hutschserengs disease, Pneama peritoneum was involving 1(2.38%) This result was agree with (9) risk for cardiovascular defects.Table (3)Show the relationship between the blood groups and congenital malformations. The result show that was significant difference at o.o5 level . There were type blood O^+ was the highest percentage. This result which need more research to detected if found relationship between ABO blood group and congenital malformation (29) , it was identified ABO incompatibility as a case of early abortion and stillbirths.(30, 31,32)suggested did not sufficient to prove, an association of blood group with congenital anomalies.

Table(1) The Total number of normal infants and malformation in June, July and August.

Month	Number of Normal neonatal number	Number of Malformations neonatal number	Percentage of congenital maleformation
June	964	18	1.87%
July	1164	13	1.17%
August	1272	11	0.87%
Total	3400	42	1.24%

Table(2):Frequency distribution of various congenital Malformations in June, July and August

	Types of Congenital Malformations	Number of Congenital Malformations in June	Number of Congenital Malformations in July	Number of Congenital Malformations in August	Total	
					No	%
1	Congenital heart disease	3			3	7.14
2	Congenital anomalies of upper limb	6	1		7	16.66
3	Chromosomal anomalies	2	1	3	6	14.28
4	Diaphramtic hernia	1			1	2.38
5	Ruminant of parasite twin	1	1		2	4.76
6	Dermoid cyst	1			1	2.38
7	Saccrococcygel mais(teratomas)	1	1		2	4.76
8	Imperforate anus	-	1		1	2.38
9	Dyspnia and cyanosis	-		1	1	2.38
10	Hinschpruys diseaes	-	1		1	2.38
11	Cleft lip	1	2		3	7.14
12	Sepsis	-		1	1	2.38
13	Pyloric stenosis	-		1	1	2.38
14	Neural tube defect	2	2	2	6	14.28

15	Dyspnia &cyanosis	-	1	1	2	4.76
16	Hiatus hernia	-	1		1	2.38
17	Femal bladder erstrophy	-	1		1	2.38
18	Pneumo peritoneum	-		1	1	2.38
19	Other anomalies of urinary system	-		1	1	2.38
	Total	18	13	11	42	1.24

Table(3)Congenital malformations Frequency and blood group distribution

Blood group	Malformations neonatal number
A^+	5
B^+	5
AB^+	6
O^+	13
A^-	1
B^-	6
AB^-	5
O^-	1

Table(4)Congenital malformations :Frequency and consanguinity distribution

Type of consanguinity	Malformations neonatal number	%
First degree	19	45.24
Second degree	8	19.05
strange	15	35.71
Total	42	

There are many factors reported in this study for families of babies with congenital malformations. Table (4)Show the consanguineous marriage with congenital malformation. The first degree was the higher percentage of malformations19(45.24%). So consanguineous marriage are reported to play a major role in the occurrence of congenital malformations(33,34) and this results agree with Iran, Turkey and Egypt most of the malformed babies had been born with consanguineous marriage (13,35).In our results showed that parental consanguinity was an important cause for most of the malformations birth defects in the offspring of first-cousin parents was higher than in the offspring of non –consanguineous parents. Because of high consanguinity rates within the Muslim population, the incidence of CM in Islamic countries is between 10 to 45%(36),while the prevalence of congenital anomalies in non-Muslim population such as Denmark is approximately 3%(37). The genetic factor play important role in parental consanguineous marriages because include inheritance of abnormal genes from the parents such as recessive gene disease occurs when both parents of the child carry that gene in hidden(38) or recessive form and the child is at risk of recessiving the recessive gene from each parents and hence the disorder(39).As well as new mutation in one of the germ cells that gave rise to the fetus and the mutations was induced by many causing such as radiation, chemical,

infection agent which due to changes in chromosome number or structure. finally fetus with congenital anomalies(11,40).For Socioeconomic inequalities observed the congenital anomalies increased with increasing Socioeconomic deprivation. It was observed the risk in the most deprived quintile of the deprivation index was 40% higher than in the most affluent quintile(41). Some malformation subgroups also showed increasing risk with increasing deprivation: all cardiac defects, malformations of the cardiac septa(42), malformations of the digestive system, and multiple malformations(43).. A decreasing risk with increasing deprivation found for all chromosomal malformations and Down's syndrome in unadjusted analyses, occurred mainly as a result of differences in the maternal age distribution between social classes(44).The a etiology of congenital anomalies is still largely unknown. suggest that risk factors linked to socioeconomic status may play a role in some but not other malformations(34). Risk factors which could mediate the prevalence of congenital anomalies include nutritional factors, lifestyle, environmental and occupational exposures, access to and use of health services, parity and maternal age, and ethnic origin. In order to close the gap in our knowledge on the extent of cause congenital anomalies and how they might be explained, the current findings require follow up in larger studies.

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الخلاصة:

تمت دراسة التشوهات الخلقية في المواليد لمدينة الديوانية للفترة الممتدة من حزيران –اب لسنة 2008.وكانت عددا لمواليد 3400 مولود تضمن 42 (1.24%) طفل شخصت إصابته بالتشوهات الخلقية وكانت النسب للتشوهات الخلقية 1.87% ،1.17% ،0.87%للأشهر الثلاث على التوالي وأظهرت الدراسة أن هناك زيادة في عدد التشوهات الخلقية للأطفال الذين هم من صنف دم O^+ وذو آباء درجة القرابة بينهم من الدرجة الأولى .